of 1835. The following is a brief description of it:—

The cathedral, as a whole, is protected by three vertical rods, placed on the summit of the pyramid, on the guard-house, which occupies one end of the platform, and finally, above the choir, beside the telegraph. The conductors, which proceed from the base of these apparatus, communicate with the earth by three wells, about ten metres (eleven yards) deep,

One of these wells was dug at the very foot of the nave and the tower, beside the Place du Château, at the bottom of the passage which separates the walls of the temple from the shops, that hide the lower part. The shop which is nearest to this first well is that of M. Rhein, the tinman.

The second well is placed, symmetrically, on the opposite side, towards the Place du Dôme; the third is behind the choir, also on the side of the Place du Dôme, and near the vestry, distant, therefore, from the other two by almost the whole length of the building. The three wells are also isolated from the public way; and each contains about one metre (a yard +) of water in the most unfavourable weather.

The conductor that protects the telegraph is composed of a brass rope, which, after being bent in various ways, arrives near the mouth of the vestry-well. This rope is then continued by a stout copper bar, terminating, at the bottom of the well, in the shape of a goose's foot.

The conical rod which surmounts the apex of the pyramid, and which constitutes the principal conductor, is at least one metre fifty centimetres (five feet) high. It seemed to me useless to elongate this rod for no other purpose than to attain or exceed the height of the highest pyramid of Egypt, as some amateurs ardently desired. The essential point was to fix it firmly on the narrow space from the middle of which it was to be elevated: its base was five or six centimetres (two to two and a quarter inches) thick. From this point proceeded four conductors formed of rectangular bars of iron, about fifty-five millimetres (two inches) wide, and fifteen (half an inch) thick. These conductors pass between the four arms of the cross, and bend, according to circumstances, in order to follow the form of the crown of the lanthorn, and to arrive at the summit of the eight spiral staircases; they then descend in the intervals which correspond to the four turrets; on arriving at the upper level of the edifice, they are united by a circle which goes entirely round it, and are completely associated one with the other.

From this metallic girdle, it was thought sufficient to carry two conductors down the length of the turrets on the north and on the east, that is to say, on the right and on the left of the immense copper roof of the nave towards which the lightning is always directed. One of these conductors—that on the north turret—descends, almost in a direct line, from the summit of the pyramid to the well of the Place du Dôme, where it terminates by a bar of copper, the thickness and width of which correspond with those of the iron bars.

The second conductor descends on the side of the east turret, touches the corner of the ridge of the nave, and is bent in order to reach the well of the Place du Château, behind the tinman's shop. By an excess of caution, we thought we had better protect the guard-house on the platform by a separate lightning-rod, the conductor of which is connected, at the mouth of the well, with the conductor that descends from the east turret.

The conductor of the tower, and those of the telegraph, are united by a long bar of iron, which follows the whole length of the ridge of the nave. All the other large metallic surfaces are also connected together, and with the general system of these conductors. The expense of the erection amounted to about 15,000 francs (625*l.*), not including, I believe, the three wells, which were constructed by the workmen attached to the monument.

During the last seven years, it does not appear that any flash of lightning, properly so called, has struck either the building or the conductors. It almost seems that storms had become less frequent and less intense over Strasburg; but on Monday, July 10th, 1843, a very violent storm burst over the town, and the lightning twice struck the cathedral, or rather the conductor.

Some individuals pretend to have seen a globe of fire enveloping the upper conductors of the lightning-rod, and gliding rapidly along their surface; but the man employed at the telegraph, who was better placed than any one else at that moment; assures us that he could only distinguish a luminous train rushing along the conductors from the top of the pyramid to the platform where the conductor became invisible to him.

At the same moment some remarkable phenomena occurred in M. Rhein's, the tinman's shop, the position of which I have mentioned above. Seven or eight persons were assembled there: a considerable number of tin and zinc vessels were ranged on the sides; long bars of iron were resting, in an upright position, against the wall, in the corner which was nearest to one of the conductors. At the moment of the explosion, they thought they saw the lightning enter by the door, which opens on the Place, pass between the legs of the persons who were present, without, however, wounding any one, and burst in a great flame against the bars of iron, going thus directly towards one of the wells. This explosion was accompanied with a noise similar to that which would be produced on striking one of the bars with a great hammer. A minute after this first explosion another thunder-stroke occurred; the electric matter again entered the same shop; but this time they were not aware of the direction in which it came.

Some workmen of the cathedral were, at the same moment, very near the shed which shelters the mouth of the well. One of them, of an advanced age, accustomed, so to speak, to this kind of observation, distinctly observed on the pavement of the little yard behind M. Rhein's workshop, luminous trains similar to those which he often remembers to have seen passing along the walls of the tower. Although he was very near, he did not feel any shock; he could distinguish neither their direction nor their form.

This, then, is the phenomenon which produced so lively an emotion in the neighbourhood of the cathedral.

What could be the cause of this deviation, partial no doubt, but, however, in some degree contrary to laws?

In the evening, after the storm, and especially on the following day, workmen descended in our presence into all the wells. M. Klotz, the architect, and M. Wagner, a clever locksmith, who constructed the lightning-rod, examined all the conductors from below upward to the summit of the pyramid, even to the apex. I did not feel myself called upon to follow these gentlemen to the limits of their aerial peregrination; but I went high enough to be convinced with them that all the conductors were sound at the points of junction, as well as elsewhere. It was impossible to discover along their whole extent the least trace of the passage of the lightning. So far as the monument is concerned, it was not touched,—not a single piece of stone or mortar was detached.

However, the electric matter evidently arrived by the summit of the apparatus, and the quantity must have been very great. In fact, the platinum cone, which was eight centimetres (three inches) long, and about one (two-fifths of an inch) thick at its base, was melted towards the point, to a length of five or six millimetres (a quarter of an inch). The metal sank down on one side, and ran like wax which had been softened at the fire. The part thus rounded, presented, on the first day, the appearance of a small and very brilliant convex mirror. This point, together with the portion of the copper rod which supported it, has been taken down, and it will be preserved in the archives of the cathedral.

My colleague, M. Finck, professor of mathematics, warned by the first explosion, immediately looked towards the summit of the tower. He saw the second flash of lightning arrive horizontally, in order to reach the point of the lightning-rod. The zigzags of this luminous line were not very distinct, and its length appeared to him about fifty metres (fifty-five yards). The cathedral was quite separate from the clouds; no light was observed either on the conductors, or on the body of the rod, the point of which had just received the fluid in so evident a manner.

Thus, then, the electric fluid struck the lightning-rod at its extremity, certainly in the second explosion, very probably in the first, which was much more powerful. Having arrived there, it had two paths to pursue, in order to reach the earth; one would have conducted it, almost in a straight line, into the first well of the Place du Dôme, with or without luminous appearances; the second path, longer but quite as continuous, would have led it on the opposite side into the well of the Place du Chateau. In fact, on this side it is that a considerable number of persons profess to have seen brushes of light upon the conductors. There it is that the extraordinary deviation, which I have pointed out, took place.

A particular circumstance seems to us readily to explain the choice of the conductor, if indeed there was no division, and especially the deviation. Behind the workshop of the tinman, on the same side as the two conductors, which unite at the mouth of the well, was collected a large quantity of lead and iron, weighing about 2,000 kilogrammes (two tons), taken from the small roofs of the nave, which, at the present time, were being covered with copper. These pieces of metal were heaped one against the other, like a pile of wood, and presented an apparent volume of about two cubic metres, (six and a half cubic feet).

Very probably some of the sheets of lead touched the conductor; but it was impossible for us to verify this fact. On our arrival, the workmen had already removed a considerable portion in order to clear the mouth of the well. Admitting the contact, we see that this great surface of extraneous metal had the power of drawing off a portion of the current from its principal direction, and directing it towards the most vicinal exterior conductors. The masses of tin, zinc, or iron, which crowded the workshop and the loft above, certainly favoured this deviation.

If contact did not take place, we must suppose that, at the moment before the explosion, all the conductors vicinal to the lightning-rod, but not connected with it, were electrised by induction. When the explosion took place, a true return shock must have been produced in a locality prepared, so to speak, in the best possible manner for a phenomenon of this kind. Further, while attaching some degree of importance to the direction of the fluid, we need not trouble ourselves about the direction in which some persons say they saw it travel; we know how very easy it is to be deceived in this point.

If, in reference to certain electric sparks, I have been induced to enter into lengthened detail, it is, first, because it seems to me that we have yet much to learn respecting thunder; it is also to shew that the lightning-rod acted with success, and that the only members of the Commission yet alive, M. Fries and myself, have not to reproach ourselves with negligence in the arrangement of the different parts of the protecting apparatus. I am very desirous that M. Arago, who has rendered so much service to electro-meteorology, should take some interest in this long recital.

Enlargement of the London Docks.—The extensive alterations making in this great emporium of shipping, wealth, and the produce of all parts of the globe, are proceeding rapidly. The splendid entrance will soon be finished, as the foundation is now nearly completed, and workmen are busily engaged in pulling down the building recently occupied by the government emigration agent, Lieutenant James Sedgwick Lean, of the royal navy, to make way for the improvements. The old entrance and the store shops on the southern side will be levelled to the ground as soon as the new buildings are so far advanced as to permit of their being demolished; on whose site will be erected a most commodious range of warehouses. The building for the commissioners, committee-room, and superintendent's offices are to be on a very large scale, and, when finished, the London Dock will be one of the finest commercial buildings in the world.

Portsea-Island Union Workhouse.—The tender accepted by the board of guardians amounting to 16,780*l.* has fallen into the hands of that spirited contractor, Mr. Nicholson, of Wandsworth.

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